A STUDY ON PERINATAL OUTCOME IN TERM ISOLATED OLIGOHYDRAMNIOS

Dissertation Submitted for

M.S. BRANCH II OBSTETRICS AND GYNAECOLOGY

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BONAFIDE CERTIFICATE

This is to certify that the study entitled **"Perinatal Outcome in term isolated oligohydramnios"** is the bonafide work done by

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This dissertation submitted to **Dr. MGR. Medical University** is in partial fulfillment of the University rules and regulations for the award of **MS Degree in Obstetrics and Gynaecology.**

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CONTENTS

Introduction

Life of human being starts in aquatic pond. Liquor amnion is like an aquatic pond. It is a

fluid filled medium inside the amniotic cavity necessary for fetal growth and

development. Pregnancy is such a precious and wonderful thing a woman's life that it

should continue without any adverse outcome. Decrease of liquor amnion is attributed to

so many causes that isolated oligo hydramnios where there is no fetal and maternal

condition exist, unnecessary pregnancy intervention should be avoided.

Liquor amnii inside the uterine cavity provides suitable environment for the fetus to grow

and thrive. It is as similar as plasma fluid with some little variation.

Composition of amniotic fluid compared to plasma

	Amniotic fluid	**Vs.plasma**
Sodium	Similar	Similar
Chloride	Higher	Lower
Potassium	Similar	Similar
Urea	Lower	Higher
Glucose	Lower	Higher
Protein	Lower	Higher
Carbondi oxide	Lower	Lower
Creatinine	Similar	Similar

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Role of amniotic fluid during pregnancy

- It forms physical space required for fetal musculo-skeletal development.

- It allows fetal swallowing needed for gastro intestinal development, and fetal

- breathing, required for lung development.

- Amniotic fluid prevents from umbilical cord compression and protect fetus from

  trauma.

- Amniotic fluid has got bacteriostatic properties.

- “Amniotic fluid volume maintains amniotic fluid pressure thereby reducing the loss of lung liquid- an essential component to pulmonary development”(nicolini, 1989)
- It maintains core body temperature of embryo.
- Amniotic fluid helps in surfactant development.

Amniotic fluid volume differs according to gestational age while it increases approximately 30 ml at 10 weeks to 200 ml by 16 weeks and reaches 800 ml by the mid of 3rd trimester. Beyond 40 weeks there is decline in amniotic fluid volume. At 42 weeks amniotic fluid volume is about 400 ml approximately.

When there is decline in amniotic fluid volume, this condition is termed as oligohydramnios, while abnormally increased amniotic fluid volume is termed as polyhydramnios.

Oligohydramnios due to impaired placental insufficiency is associated with an increased risk of caesarean delivery for

- fetal distress,
- low Apgar score,
- postmaturity,
- MAS (meconium aspiration syndrome)
- perinatal mortality and morbidity.

Associated condition of maternal and fetal condition in oligohydramnios:

- Congenital malformation,
- diabetes,
- hypertensive disorders
- preterm premature rupture of the fetal membranes and

intrauterine growth restriction .

all the above associated factors can cause fetuses to adverse perinatal outcome.

But present study is undertaken on isolated oligohydramnios , where no other maternal

or fetal condition co exist, and its effect on perinatal outcome.

AIM OF THE STUDY

To determine the perinatal outcome in term isolated oligo hydramnios

REVIEW OF LITERATURE

Liquor amni, a fluid released by amnion. It is a 2 layered extra embryonic membrane

which is formed by inner ectoderm and outer somatic mesoderm .Liquor amni provides

fluid medium for early development of embryo.

Formation of amniotic fluid

Composition of amniotic fluid is same as extracellular fluid during the first trimester

Three overlapping excretory system develop during the embryo fetal development-pro

nephros, mesonephros, meta nephros. The metanephric system begin to develop e by 7

weeks menstrual age and are functional by 10 to 11weeks. Fetal urine is hypotonic.

Hypotonicity of fetal urine explained by the fact that glomerular filtration precedes

tubular function. (**Mannie IW, 1980)**

REGULATORY FACTOR IN MAINTAINING AMNIOTIC FLUID VOLUME

Though skin :

There occurs stratification and cornification of the fetal skin. This

stratification and cornification occurs throughout the pregnancy that decreases the diffusion of fetal extra cellular fluid into the amniotic cavity. This explains higher transcutanous fluid losses in preterm infant.

Fetal urination

in the 2nd half of pregnancy it is the primary source of amniotic fluid in 2nd half of pregnancy. Fetal urine production exceeds 1liter / day, which causes entire amniotic fluid to get recirculated in 1 day by term. Both fetal urine and amniotic fluid is of same osmolality(hypotonic), 260 mOsm/ liter m, the reason for intramembranous fluid transfer across the vessel of placenta and tthus into the fetus . "In the setting of maternal dehydration, the resultant increase in maternal osmolality favors fluid transfer from fetus to mother, and then from amniotic fluid compartment into the fetus"(Moore 2010)

fetal lung

fetal lung sectretes huge amount of pulmonary secretion per day out of which only less

than one percentage is required for expansion of alveoli, which is required for growth

and development of respiratory system rests contributes to the amniotic fluid or

swallowed by trachea which forms the source of surfactant which is contributed to fetal

pulmonary maturity .

A study supported that although meconium staining of liquor, aspiration of meconium of

lungs in newborn baby is relatively uncommon**(Hardin R 1994)**

trans membranous and intramembranous pathway:

“ four intramembranous transport mechanisms acting in harmony

1) an active unidirectional bulk transport of AF with all dissolved solutes out of AF

into fetal blood presumably by vesicles;

2) passive bidirectional diffusion of solutes, such as sodium and chloride, between

fetal blood and AF;

3) passive bidirectional water movement between AF and fetal blood; and

4) unidirectional transport of lactate into the AF” Regulation of amniotic fluid volume: mathematical model based on intramembranous transport mechanisms.”

Brace RA[1], Anderson DF[2], Cheung CY[3].

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REGULATORY PATHWAY

Pathway	Effect on volume	Approximate daily volume
Fetal urination	**Production**	**1000**
Fetal swallowing	**Resorption**	**750**
Fetal lung fluid secretion	**Production**	**350**
Intramembranous flow across fetal vessels on the placental surface	**Resorption**	**400**
Trans membranous flow across amniotic membrane	**Resorption**	**Minimal**

Hormones and oligo hydramnios-

Prolactin hormone has negative in impact on amniotic fluid regulation, by stimulating water transport from fetal to maternal compartment. So also cortisol and anti diuretic hormones.

Definition of oligo hyramnios

Amniotic fluid volume is measured by ultra sonography. One widely used definition of oligo hydramnios is no. of measurable vertical pockets greater than 2cm and another is AFI of 5cm or less.

"ACOG supported the use of deepest vertical pocket of amniotic fluid volume of 2cm or less to diagnose oligo hydramnios(too little amniotic fluid rather than an amniotic fluid index of 5cm or less).

The deepest vertical pocket method for amniotic fluid assessment is preferred because clinical trials have shown that defining oligohydramnios as a deepest vertical pocket of less than 2cm or less will result in fewer obstretic intervention without change in adverse outcome when compared with defining oligohydramnios as an AFI of less than or equal to 5 cm."

The deepest vertical pocket should be within two centimeter to 8 centimeter in singleton

and twin gestation or about one third the values for the normal range of the AFI.

Depth of single deep vertical pocket	Definition
<1cm	**Severe oligo hydramnios**
>1cm and <2 cm	**Mild oligo hydramnios**
>2cm and <8cm	**Normal**
>8cm and <12 cm	**Polyhydramnios**
>12cm and < 16cm	**Moderate polyhydramnios**
>16cm	**Severe Polyhydramnios.**

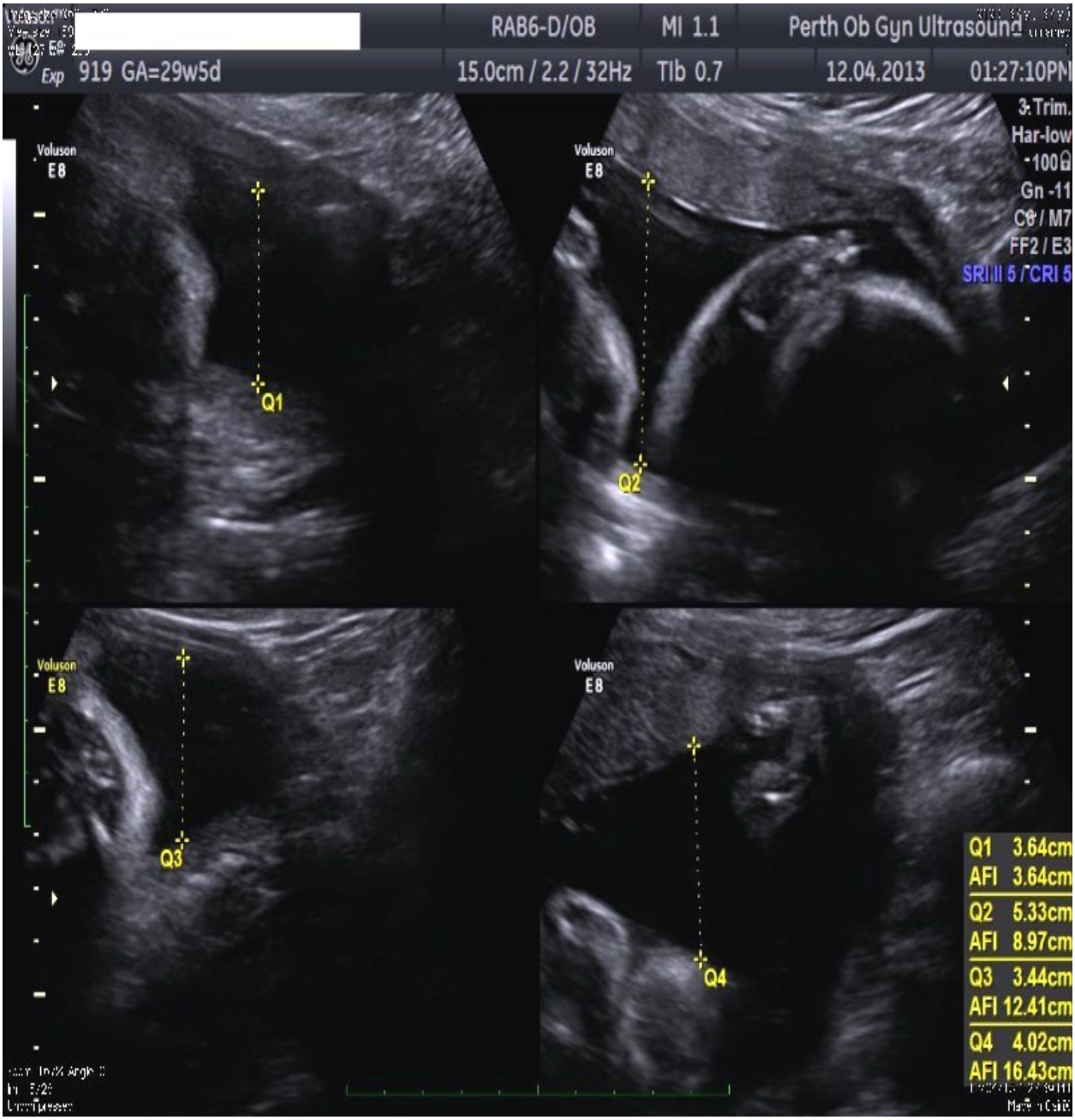
The amniotic fluid index was for assessing the amount of amniotic fluid throughout the

uterine cavity **(phelan et al 1987)**, . Amniotic fluid index is obtained by summing up the

vertical pocket of amniotic fluid in each quadrant of the uterus, whereas

oligohydramnios is defined as summation of vertical pockets of amniotic fluid is <5 cm.

Jeng and Co workers (1992)defined oligohydramnios as an AFI<8cm.


RAB6-D/OB
MI 1.1
Perth Ob Gyn Ultrasound
Exp 919 GA=29w5d
15.0cm / 2.2 / 32Hz
TIb 0.7
12.04.2013
01:27:10PM
3:Trim.
Har-low
-100
Gn -11
C0 / M7
FF2 / E3
Voluson
E8
Q1
Q2
Q3
Q4
Q1 3.64cm
AFI 3.64cm
Q2 5.33cm
AFI 8.97cm
Q3 3.44cm
AFI 12.41cm
Q4 4.02cm
AFI 16.43cm

Amniotic Fluid volume:

amniotic fluid volume is usually not done for practical stand point of view, but contributed significant values in study point of view. It actually gives some idea about understanding amniotic fluid physiology. Amniotic fluid volume is measured by dye dilution technique by injecting amino hippurate in amniotic cavity.

Mean volume of amniotic fluid = approx 750 ml between the gestational period of twenty two and thirty nine weeks .

Definition of Oligo hydramnios by various authors:

According to Horsager et al (1994) and Magann et al (1992) , by dye dilution technique, they defined oligohydramnios as liqor amni as less as 200 ml and 500ml respectively by uind Dye ditution method.

By ultrasound, **Manning et al 1990,** define oligo hydramnios when single vertical pocket <2cm.

According to **Moore(1990),** when AFI <5cm, while **Dizon –Townson(1996)** defined oligo hydramnios as AFI<7cm by ultrasound

Some causes of oligo hydramnios:

A number of conditions have been found

- Ruptured membrane
- Congenital anomalies

  Bilateral renal agenesis or cystic dysplasia

  Obstruction of the urinary tract

  Meckel-gruber syndrome

  VACERL(vertebral, anal, trachea oesophageal, renal, limb)

  Sirenomelia

  Sacral agenesis

- Growth restriction(Placental insufficiency)
- Post termed pregnancy
- Drugs: Angiotension converting enzyme inhibitors

  Prostaglandin synthetase inhibitor.
- Twin to twin transfusion.
- TRAP(twin reverse arterial perfusion sequence.)
- Fetal demise.

- Utero placental insufficiency

- Hypertension
- Pre eclampsia
- Diabetes
- Hypovolemia

- Idiopathic

Chronic and acute oligo hydramnios:

Reason of acute oligo hydramnios –

Spontaneous rupture of membrane prematurely.

Reason for chronic oligo hydramnios:

- Major fetal congenital anomalous condition.
- Hypoxic state prenatally due to any cause

Effect of oligo hydramnios in pregnancy outcome:

increased risk of adverse outcome is seen in pregnancy with oligo hydramnios.

A study conducted by Casey et al at parkland hospital (2000) came up with the

findings that an AFI <5 cm complicated 2 % of pregnancy after 34 weeks.

There is evidence that more pregnancies will be fall under the category of oligo

hydramnios if oligohydramnios is defined as an AFI<5cm rather than a single

deepest pocket <2cm**.**

Nabhan and Abdelmoula (2008)reviewed five randomized controlled trials

involving more than 3200 pregnancies in which outcomes were compared

according to which definition was used.

The trials include both high –risk and low- risk pregnancies. There was no difference in the rates of caesarian delivery, neonatal intensive care unit admission, umbilical artery PH<7.1, or APGAR score <7 at 5 minutes. Using AFI criteria, however, along with a doubling of the labour induction rate, and a 50 percent increase in the cesarean delivery rate for fetal distress.

Fetal Hypoxia in oligohydramnios:

“Oligohydramnios where maternal condition is associated in the form of hypertensive disorder of pregnancy or chronic hypertension, severe preeclampsia a, chronic kidney disease, in such case severe fetal hypoxia can occur which is attributed to utero placental insufficiency.” (Deitinger, 1987)

“Accordiong to experimental study of Yancey 1994, there occurs reflex

redistribution of cardiac output of fetus causind a decline in renal and

pulmonary flow, so urinary output and production of fluid by lung declines

causing decrease in in the amount of amniotic fluid.”

“In chronic fetal hypoxia, hypoxia causes suppression of fetal swallowing, it

causes increase amniotic fluid volume.

It is postulated that oligohydramnios associated with fetal hypoxia is caused

by placental Dysfunction in addition to hypoxia.”

Effect on fetus with oligo hydramnios

“Shenker et al 1991 stated early onset oligo hydramnios mostly in the first

trimester is mostly associated fetal congenital mal formation.”

“Gaemel et al 1997 stated preterm oligohydramnios lands up with preterm delivery”

“Third trimester oligo hydramnios may be associated with malpresentation ,

umbilical cord compression, meconium stained liquor(Hofmeyr, 1991)”

“Baron et al 1995 observed 50% increase in variable deceleration during labor and

7 fold increase in LSCS”

Definition of isolated oligohydramniios

Isolated oligo hydramnios is defined when there is no fetal and maternal condition

co exist.

“Active induction of labor in term low risk gestations with isolated oligohydramnios

translated into higher labor induction, operative vaginal delivery and cesarean

section rates. This

led to increased maternal risk and an increase in costs with no

differences in neonatal outcome**”(Manzanares S , Carrillo MP, González-Perán E, Puertas A, Montoya F.. J Matern Fetal Neonatal Med. 2007 Mar;20(3):221-4.)**

‘Isolated oligohydramnios is not associated with impaired fetal growth or an increased

risk of adverse perinatal outcomes.**’ (Jun Zhang[a],*, James Troendle[a], Susan Meikle[b], Mark A. Klebanoff[a], William F. Rayburn[c] . BJOG: an International Journal of Obstetrics and Gynaecology**

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How to approach for a case of oligo hydranios

- Clinical approach:

  On palpation uterus felt much smaller than expected.

  Restricted fetal movements

  Fetal parts are easily palpable

- Sterile speculum examination

  Pooling of amniotic fluid can be noted in vagina and can be subjected to nitrazine paper test. Liquor amni is basic.

- Ultrasound,

  It provides an easy and reliable confirmatory diagnosis. It is either measured as

  amniotic fluid index or single deepest pocket

- Dilution technique by using dye for estimating amniotic fluid volume.

  Accurate but an invasive procedure needing amniocentesis, might lead to fetal injury.

- MRI and 3D ultra sound are newer modalities for estimating amniotic fluid volume

Diagnostic criteria for oligo hydramnios

- Nil fluid pockets in the uterine cavity
- Full of fetal parts
- No liquor pocket surrounding the fetal legs.
- Over crowding of fetal ribs.

POTTER's SYNDROME

Synonym – olygohydramnios sequence.

Genetic inheritency

Cause of Potter's syndrome :

Autosomal recesive polycystic kidney disease

Autosomal dominat polycystic kidney disease.

With resultant oligo hydramnios due to fetal renal failure, less liquor amnii restrics fetal

movements that may may eventually contributes to cranio facial abnormalities

diagnosis by ultrasound, low liquor amnii with abnormal renal development.

Treatment option: there is no successful treatment for potter's syndrome

Potter syndrome has 5 types:

Classic – in classic type the infant has bilateral renal ageneses

Type 1- it is due to autosomal recessive polycystic kidney disease.

Type 2- it is due to renal ageneses.

Type 3 – autosomal dominant polycystic kidney is the cause.

Type 4- it is due to prolonged urogenital obstruction.

Potter facie

Oligo hydramnios treatment and management

“Where no fetal and maternal condition co exist, woman with healthy pregnancy,

who develope oligohydramnios towards the later stage often don not require

treatment.

In such conditions, continous fetal heart rate monitoring, lung development as well

as baby’s movements closely using ultrasound and similar tests. Delivery is the most

appropriate management option if oligo hydramnios occurring during last stage of

pregnancy.

In more severe cases of preterm oligohydramnios may require treatment measures

Approach of management according to gestational age

Preterm	term	Post term
Mostly expectant manange ment under strict fetal surveillance. During labour , continous fetal heart rate monitoring is mandatory	The most appropriate treatment is termination of pregnancy depending on feto maternal status- fetal well being, parity gestational age, inducibility,and extent of oligo hydramnios	**Has no greater risk of caesarean deliver.**

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Amnio infusion

It includes sodium choride solution infusion into amniotic cavity. Intra uterine catheter to be used. It helps in maintaining maintain normal liqour levels.

It helps in prolonging the gestational age, prevents cord compression, pulmonary Hypoplasia

Amnio infusion route:

Trans abdominal:

It is resort to diagnostic and therapeutic purpose in a woman with 2nd trimester oligo hydramnios. (Quetel,1992.)

It is done under ultrasound guided, with the help of needle isotonic saline is injected. The procedure may be repeated.

Disadvantage:

Miscarriage

Abruption of palcenta

Trauma to fetus

Chorio amnionitis.

Trans vaginal amnio infusion:

The procedure is done by instilling intra uterine catheter trans cervically. It helps by

improving amniotic fluid volume and preventing complication during labor as variable

deceleration.

The role of amnio infusion in variable deceleration is not clear but multiple randomized

control trials concluded that it is associated with diminish in meconium aspiration and

meconium aspiration syndrome**.(Dye 1994)**

Vesico –Amniotic shunt

This shunt involves to divert the urine of fetus into uterus in women with fetal

. Vesico amniotic shunts might prove

quite effective in treating oligo hydramnios in fetal obstructive-uropathy complicating ;

however , their efficacy in

maintaining proper kidney and lung functions is still doubtfull.

Fluid injection

Injection fluids through amniocentesis prior to delivery. Although, the condition tends

tends to return within a few weeks after administering the injection."

Maternal Re-hydration

Using oralfluids and I.V fluids to mother's body helps to raise the amniotic fluid levels." (http://www.pregmed.org/amniotic-fluid.htm)

L-argine and oligo hydramnios

It is a nitric acid donor causing vascular dilatation, very helpful in improving oligo

hydramnios.

" l-arginine supplementation is promising in improving volume of amniotic fluid in

cases of oligohydramnios and prolonging pregnancy by a mean of 2.4 weeks,

allowing fetal lung maturation thus benefiting the neonatal outcome." ***Journal of obstetrics and gynaecology of India***

PubMedID: 27651617

Soni A, Garg S, Patel K, Patel Z. Role of l-Arginine in Oligohydramnios. J Obstet Gynaecol India. 2016;66(Suppl 1):279-83.

Amino infusion in oligo hydramnios.

Oligohydramnios is said to be late sign of fetal malnutrition attributed by maternal

nutritional status directly

Amino acid infussion helps in oligo hydramnios other wise not explained by any other

attributable cause is

mother by improving maternal health status, compromised by socio economic status

deprived of proper nutrition specially in developing countries

Role of fructodex in oligohydramnios:

It helps in oligohydramnios by improving nutrition status .

Fructodex Infusion’s composition

- Invert sugar (10%)
- Sodium chloride (0.9 g)

It helps in improving oligohydramnios by regulation tissue hydration and fluid balance

Oral hydration therapy:

Oral hydration therapy improves maternal hypovolemia, achieved by asking the mother 1.5 litres to 2 litres of water 2 hour.

Study conducted by Zakaria Nada (Mbbch, M.Sc., M.D. Chief of OB/GYN department,Benha

Teaching Hospital,Benha,Egypt” concludes not much difference in oral hydration and I.V hydration in

improvement of oligohydramnios

IUGR and oligo hydramnios

IUGR and oligo hydramnios is a common association, if oligo hydramnios sets in early.

It counts for poor fetal outcome. In early onset oligohydramnios , where fetal congenital

malformation is the main cause is to be rule out by ultra sound.

IUGR is related to diminished fetal urine production as a result direct utero placental

Insufficiency so also reversal of intramembranous flow . chamberlain conclude that there

is direct prevelance of IUGR with single amniotic fluid pocket of >2cm, between 1 and 2

cm and <1cm of 5%,20% and 37% respectively.

Post term pregnancy and oligo hydramnios

There is established relationship between post term pregnancy and adverse perinatal

outcome due to decreased post matured placental function and oligo hydramnios.

Ultrasound monitoring is crucial at this stage.

Preterm rupture of membrane

“Preterm rupture of membrane is defined when there is rupture of membrane

before 37 weeks of gestation. Spontaneous ruptuire of membrane between 24 and 34

weeks gestation occur in 1.7 % of cases account for 20 % perinatal death . mid trimester oligo hydramnios carry poor prognosis”. (Shipp 1996)

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Fetal Hypoxia and Oligohydramnios

Hypoxia of fetus as a result of oligo hydramnios is directly due to placental insufficiency

which is directly attributed to maternal condition as such Chronic hypertension, severe

pre eclampsia , and chronic renal disease.

There occurs reflex redistribution of fetal cardiac output with decrease in renal and

pulmonary flow leading to diminishing in liquor volume.

Complications of oligohydramnios.

Fetal lung hypoplasia

Oligohydramnios is the associated cause, which is attributed to bladder obstruction

hindering with development of other organs including pulmonary developement with

resultant of less and smaller size of broncho pulmonary segment

Amniotic band syndrome(ABS)

"Mechanism of formation of ABS is there is rupture of inner amnionic

membrane with intact chorionic membrane , fibrous ruptured bands of amniotic

membrane then entangling some fetal parts causing ABS, with fetal parts developing

beyond the band."(https://en.wikipedia.org/wiki/Amniotic_band_constriction)

Fetal compression syndrome

Decreased liquor amnii as a result of oligo hydramnios limits fetal movement that can cause muscle weakness, fetal akinesia

Increased risk of fetal infection
(long duration of amniotic membrane rupture by ascending infection)

"Pregnancies with isolated oligohydramnios had perinatal outcomes similar to

pregnancies with a normal amniotic fluid index. Isolated oligohydramnios is not

associated with impaired fetal growth or an increased risk of adverse perinatal

outcomes".(Jun Zhang[a,]*, James Troendle[a], et al , BJOG: an International Journal of Obstetrics and Gynaecology
March 2004, Vol. 111, pp. 220–225,)

"Oligohydramnios is frequent occurrence and demands intensive fetal surveillance and

proper antepartum and intrapartum

care.

Due to intrapartum complication and high rate of perinatal morbidity and mortality, rates

of caesarean section are rising,

But decision between vaginal delivery and caesarean section should be well balanced so

that unnecessary maternal morbidity prevented and other side timely intervention can

reduce perinatal morbidity and mortality." *(Krishna Jagatia, Nisha Singh, Sachin Patel.* Int J Med Sci Public Health. 2013; 2(3): 724727*)*

Oligo hydramnios and IUGR-

IUGR and oligo hydramnios is acommon association, directly related utero placental insufficiency.

Oligo hydramnios and post term pregnancy-

Several study also concludes established relationship between oligo

hydramniios and post term pregnancy with increased inmcidence of meconium stained

liquor and IUGR.

" By Sherer, 1990 and Flack 1995,acute hypovolemia of mother attributed to oligo

hydramnios. There are several studies concluding maternal dehydration causes reduction

in amniotic fluid volume by mediating intra membranous flow in reducing fetal

osmolality."

"A study conducted by Manzanares et al 2007 on induction in isolated

oligohydramnios concluded increased rates of labor induction, operative vaginal

delivery and cesarean section rates leading to maternal mortality and with no

differences in neonatal outcome." (J Matern Fetal Neonatal Med. 2007 Mar;20(3):221-4.

Isolated oligohydramnios in term pregnancy as an indication for induction of labor.
Manzanares S , Carrillo MP, González-Perán E, Puertas A, Montoya F.)

Matterials and Methods

A descriptive study on the perinatal outcome in term isolated oligohydramnios with AFI<5 , carried out in institute of obstretics and gynecology, Govt hospital for woman and children, attached to Madras Medical College, Chennai-8, during the period of february2016 to September 2016.

Inclusion criteria:

- AFI<5
- SLIUG with cephalic presentation
- 37 to 40 weeks of GA
- Intact membrane

Exclusion Criteria

- patient with ruptured membrane
- cong.anomalous fetus
- multiple gestation
- GA<37or >40
- high risk pregnancy

Sample size:100

History taking done regarding

- age
- parity
- gestational age
- obstretic history past or present
- any co morbid illness or fetal congenital anomalies ruled out

any complication in present pregnancy noted..

general examination done .
general conditions noted,
vitals in the form pulse , BP, temperature, respiratory rate noted.

systemic examination done.

Obstretics examination done:

symphysio fundal height measured

uterine size, presentation and adequacy of amniotic fluid clinically noted

speculum or per vaginal examination done to rule out ruptured membrane.

Routine and necessary investigations done.

Non stress test done

Ultra sound done for fetal well being, fetal biometry or anatomic placental location, to
rule out adnexal or uterine pathology.

Ultra sound also done to rule out further for fetal congenital anomaly

Amniotic fluid index measured following the method described by **Phelan et al(1987).**

“A curvilinear transducer is used.

Uterus is marked into 4 Quadrants by maternal sagittal line in the midline vertically and

An arbiterally transverse line drawn halfway between symphysis pubis and upper edge of

uterine fundus.

The transducer is to be kept parallel to maternal sagittal plane and perpendicular to the

maternal coronal plane through out.”

The deepest , structures free amniotic fluid pocket visualized and and measured in each

quadrant in vertically. The 4 pockets measurement summed up which gave the value of

AFI.

100 patients selected according to their selection criteria whose AFI falls below 5cm.

The patients are followed by their mode of delivery. The babies were followed and

assessed by the need for neonatal admission.

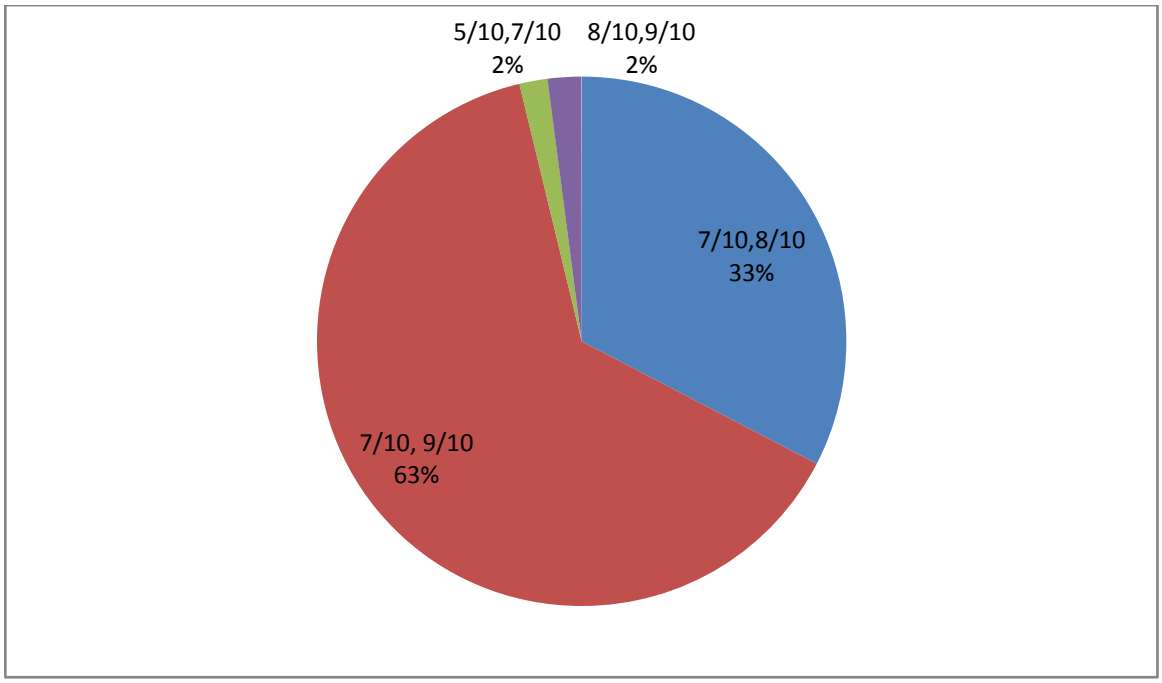
OBSERVATION

The study undertaken presently is a descriptive analysis of 100 patient to study the perinatal outcome in term isolated oligohydramnios in pregnancy with amniotic fluid index 5cm or less.

Total no. of patient selected for the study group is 100.

APGAR in 1 min and 5 min

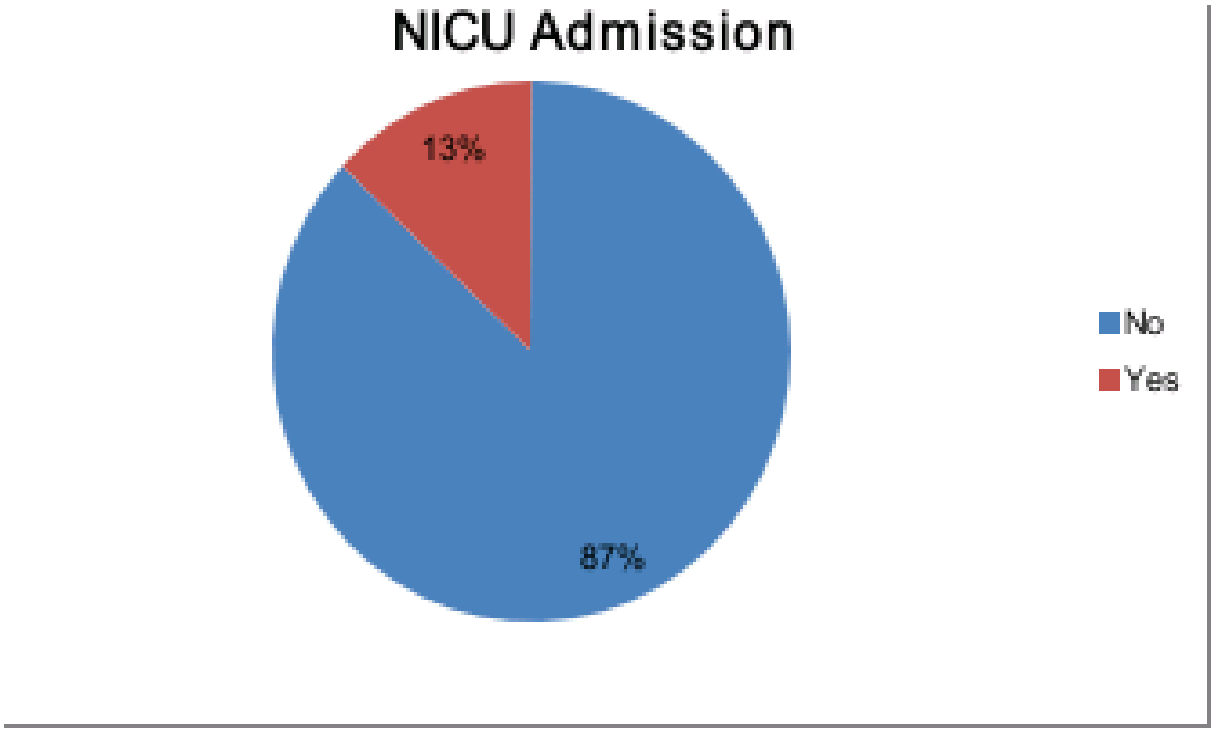
		Frequency	Percent
valid	7/1o,8/10	19.0	19%
	7/10,9/10	37.0	37%
	5/10,7/10	1.0	1.0%
	8/10,9/10	43.0	43%
	Total	100	



Above table and chart shows, overall APGAR score is good

NICU admission

		Frequency	Percent	Valid percent	Cumulative percent
	Nil admission	87	87.0	87.0	87.0
	Admission	13	13.0	13.0	100.0
	Total	100	100.0	100.0	100.0

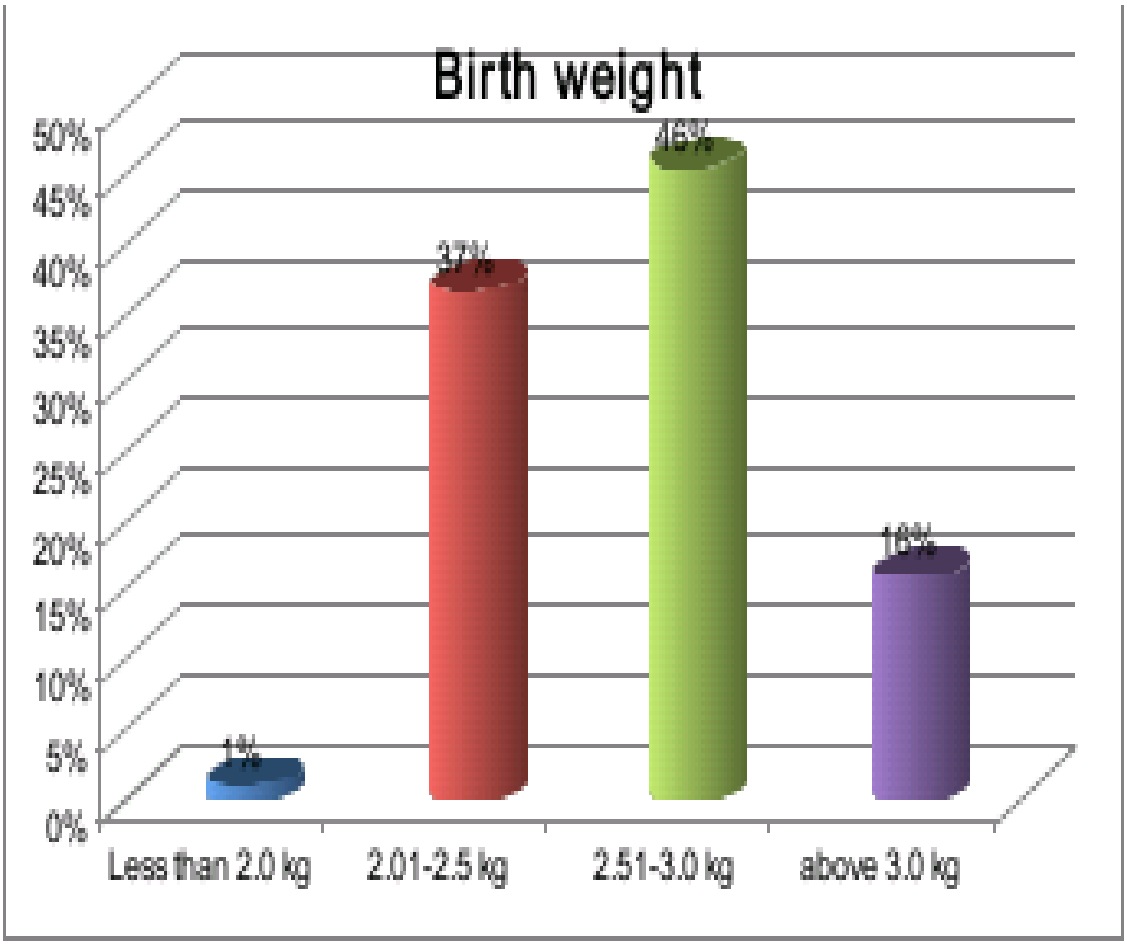


the above table shows only 13 % of baby needed NICU admission.

46

Birth weight

		No. of cases	Percent
Valid	Less than 2.0 kg	1	1.0
	2.01-2.5 kg	37	37.0
	2.51-3.0 kg	46	46.0
	Above 3 kg	16	16.0
	Total	100	100.0



[n

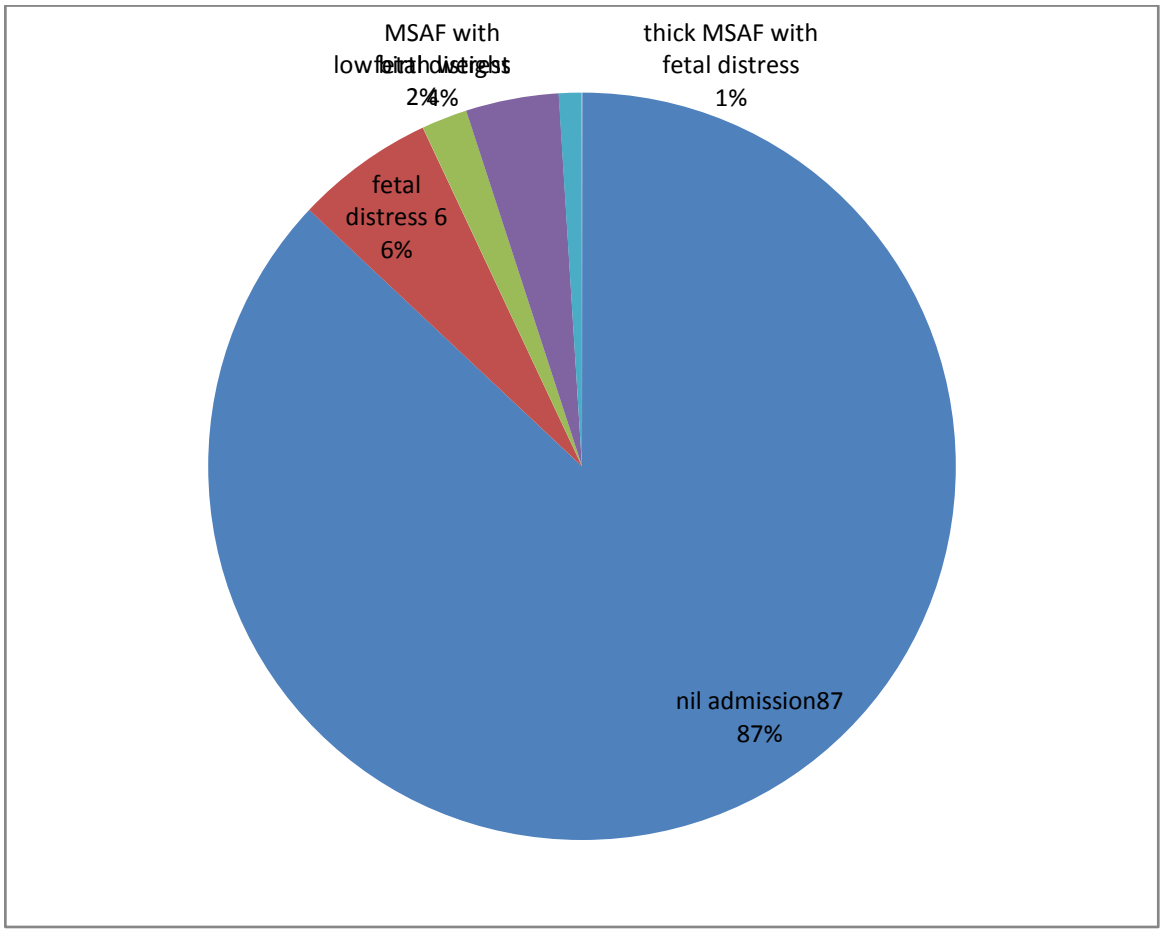
46% of cases birth weight was in between 2.51 to 3.0kg, less than 2 kg was 1% above 3 kg was 16 %

Reasons for NICU admission

	No of cases	Percent	Valid percent	Cumulative per
Nil admission	**87**	**87**	**87.0**	**87.0**
Fetal distress	**6**	**6**	**6.0**	**6.0**
Low birth weight	**2**	**2.0**	**2.0**	**2.0**
MSAF with fetal distress	**4**	**4.0**	**4.0**	**4.0**
Thick MSAF with fetal distress	**1**	**1.0**	**1.0**	**1.0**
Total	**100**	**100.0**	**100.0**	**100.0**

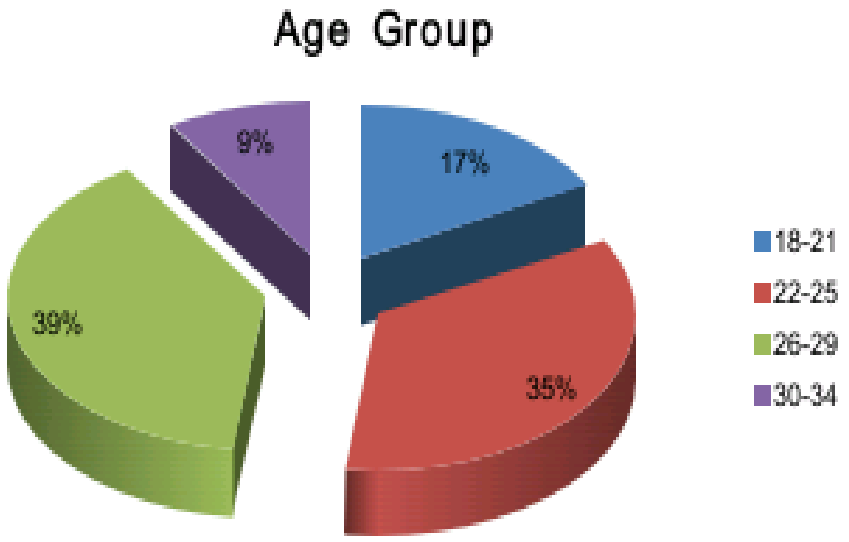
According to the table, reason for admission , 6% for fetal distress, low birth weight 2%,

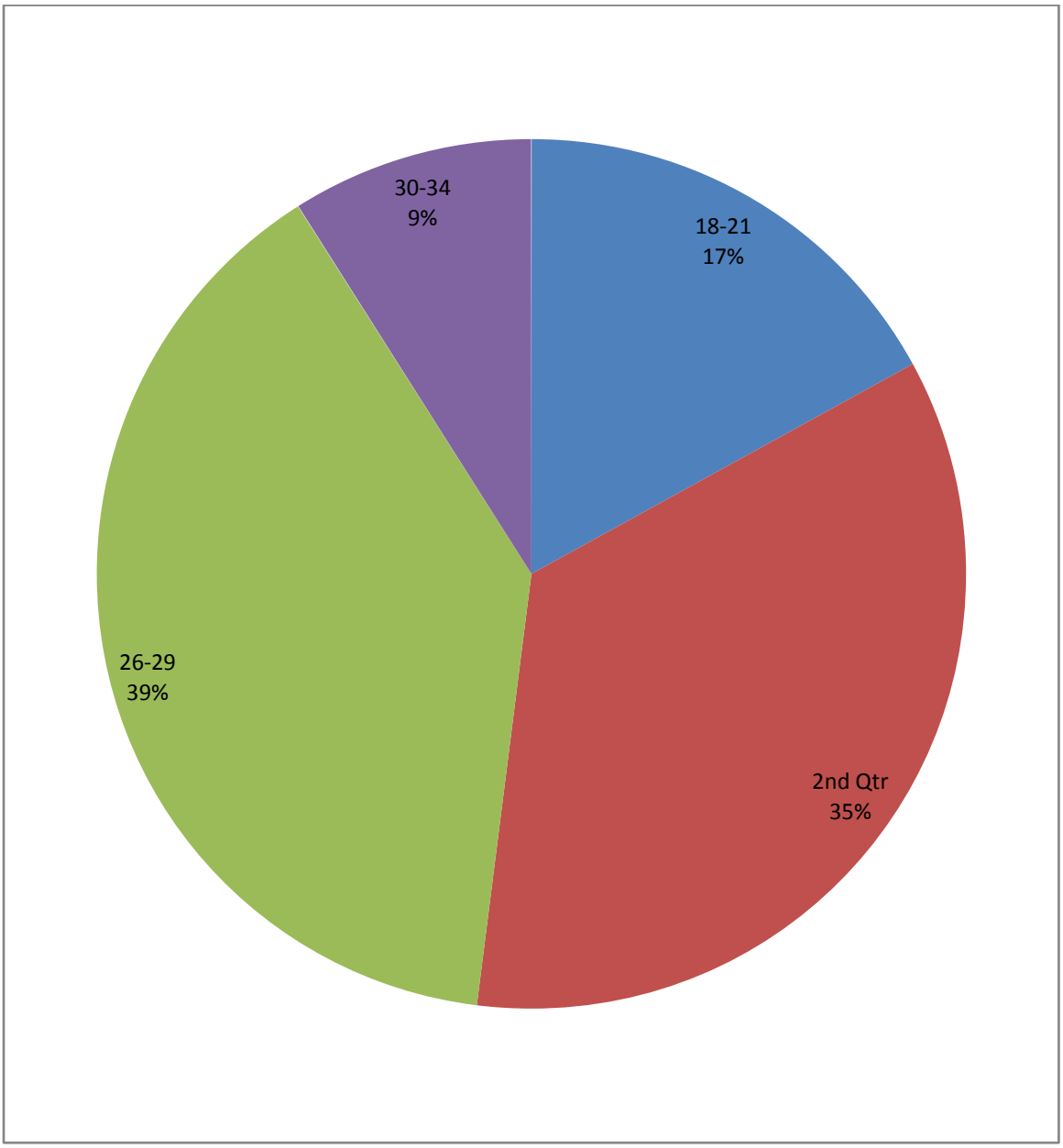
MSAF with fetal distress4%, thick MSAF with fetal distress 1%


MSAF with
thick MSAF with
fetal distress
1%
fetal distress 6
6%
nil admission87
87%

Age group

	No. of cases	Percent	Valid percent	Cumulative percent
18 -21	17	17.0	17.0	17.0
22-25	35	35.0	35.0	35.0
26-29	39	39.0	39.0	39.0
30-34	9	9.0	9.0	9.0
	100	100.0	100.0	100.0

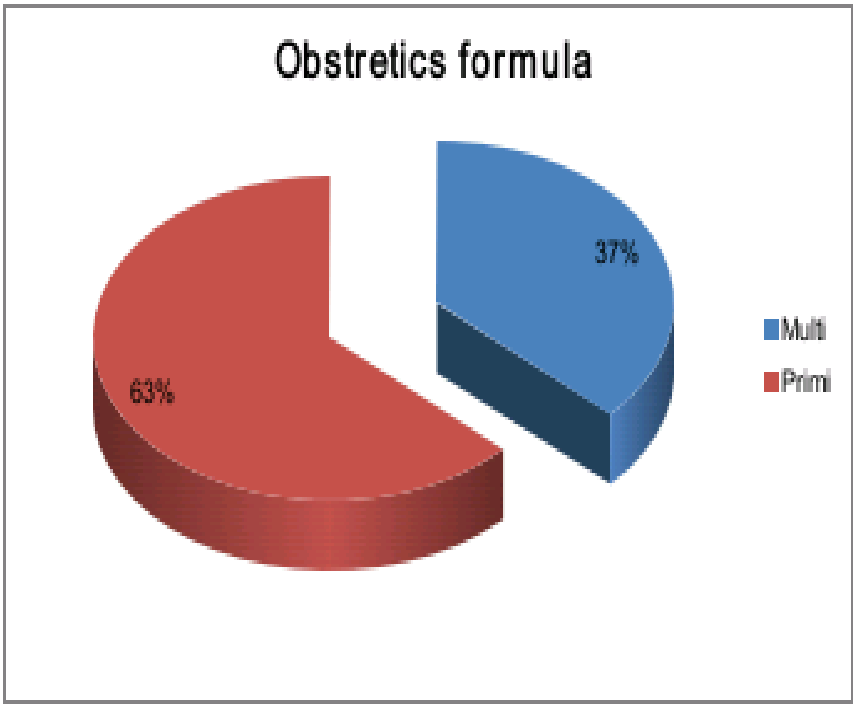

Age Group
9%
17%
39%
35%
18-21
22-25
26-29
30-34



It can be found from the above table majority of the cases are in age group between 20 to 30 years.

Obstretic formula

	No. cases	Percent	Valid percent	Cumulative percent	
Multi	**37**	**37.0**	**37.0**	**37.0**	
Primi	**63**	**63.0**	**63.0**	**63.0**	
Total	**100**	**100.0**	**100.0**	**100.0**	

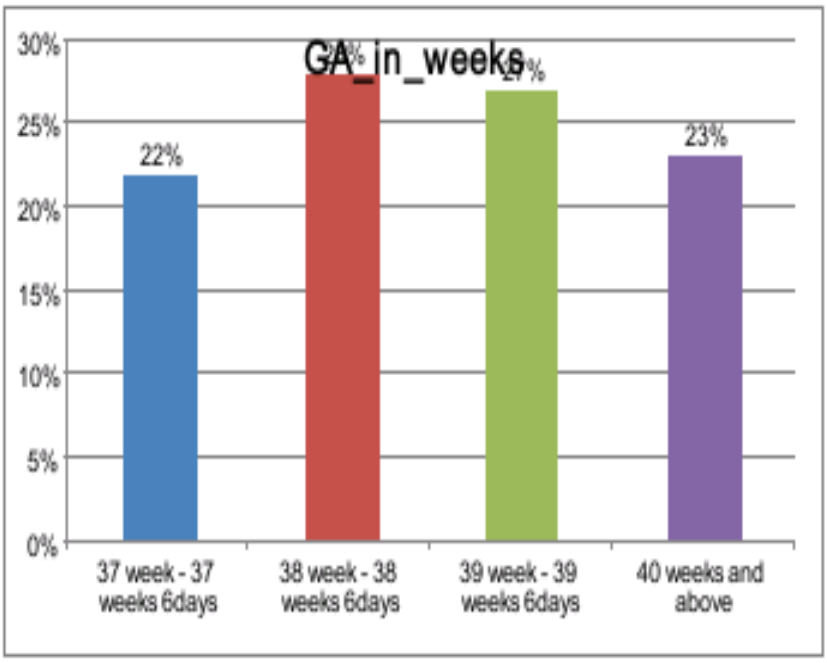


in the study ,

63% primi with 37% multi

Gestational age

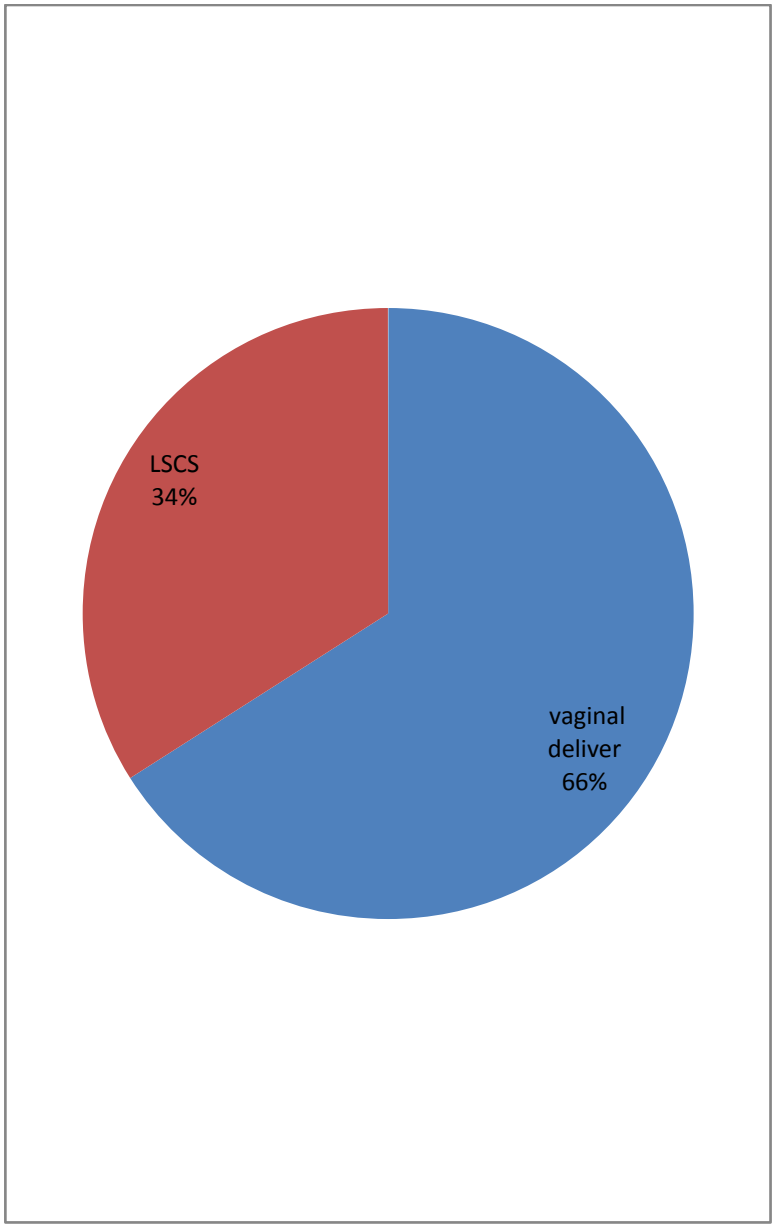
		No. of cases	Percent	valid percent	Cumulative percent
valid	37 weeks-37weeks 6days	22	22.0	22.0	22.0
	38weeks-38weeks 6 days	28	28.0	28.0	28.0
	39 weeks-39weeks 6 days	27	27.0	27.0	27.0
	40 weeks and above	23	23.0	23.0	23.0
	Total	100	100.0	100.0	100.0



the above table shows that 37to 39 completed weeks is 73% while 40 weeks and above is 23%

MODE OF DELIVERY

		No. of cases	Percent	Valid percent	Cumulative Percent
Valid	Vaginal delivery	66	66.0	66.0	66.0
	LSCS	34	34.0	34.0	34.0

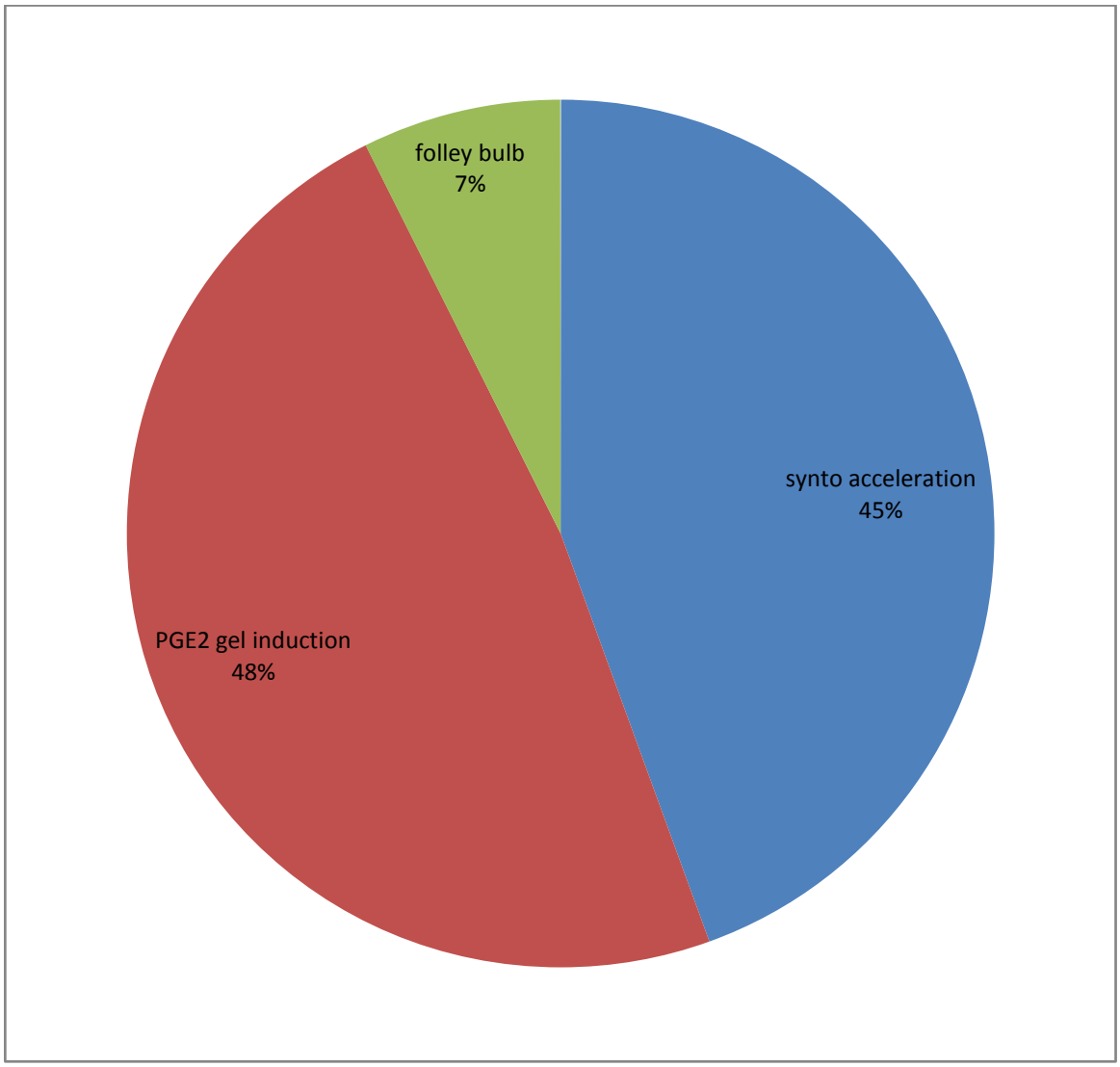


Incidence of Vaginal delivery vs LSCS 34% vs 66%.

INDUCTION

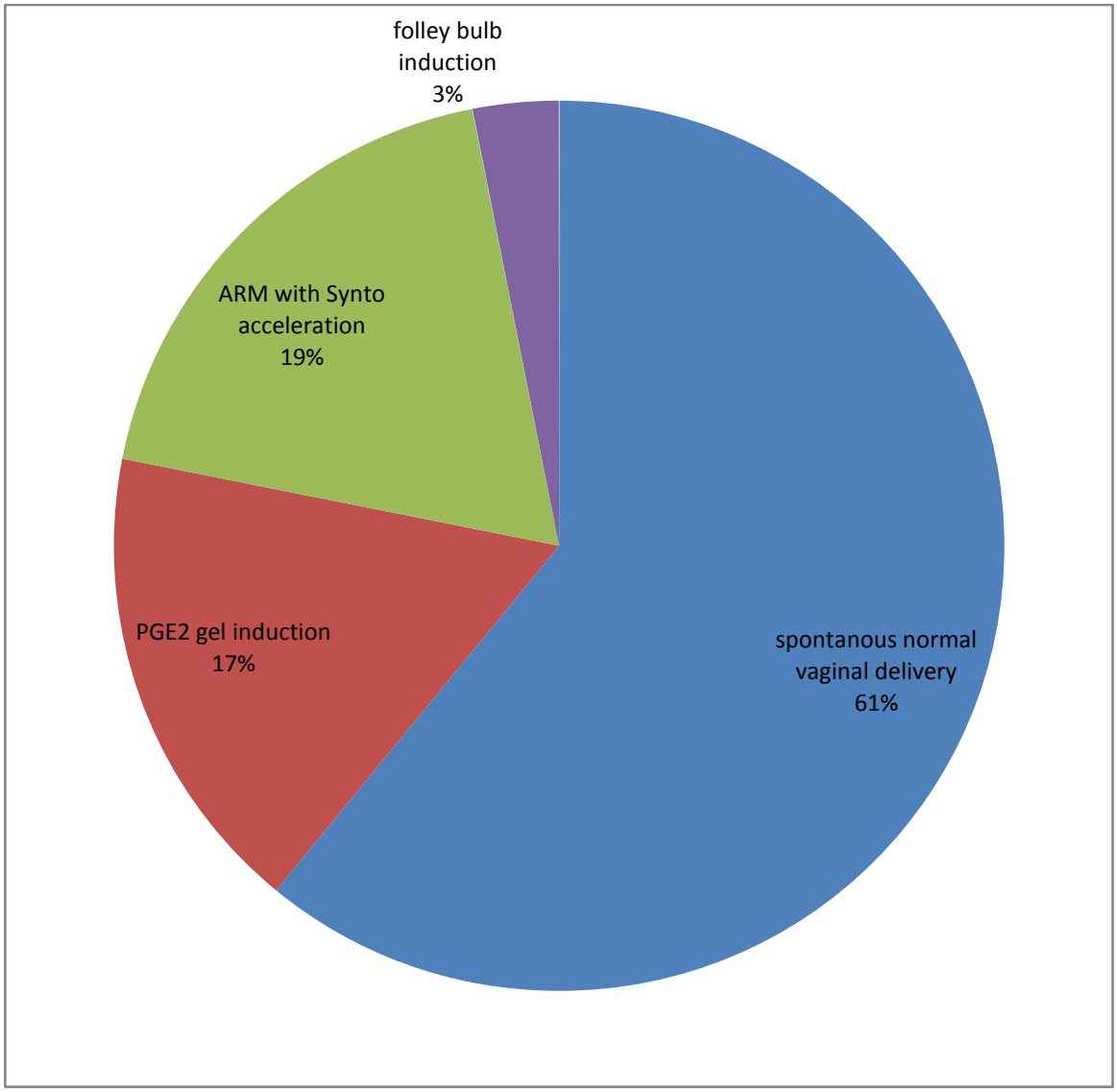
		No. of cases	Percent
Valid	**Synto acceleration**	**12**	**45%**
	pE@ gel induction	**13**	**48%**
	Folley bulb induction	**2**	**7%**

No. of induction done from the table out of which PGE2 gel induction is 48% and synto acceleration is 45.0%, folley bulb 7%


folley bulb
7%
synto acceleration
45%
PGE2 gel induction
48%

NORMAL VAGINAL DELIVERY

		No. of cases	percentage
	Spontaneous labor	39	39.0
	PGE2 gel induction	11	11.0
	ARM synto acceleration	12	12.0
	Folley Bulb induction	2	2.0
	Total	64	64



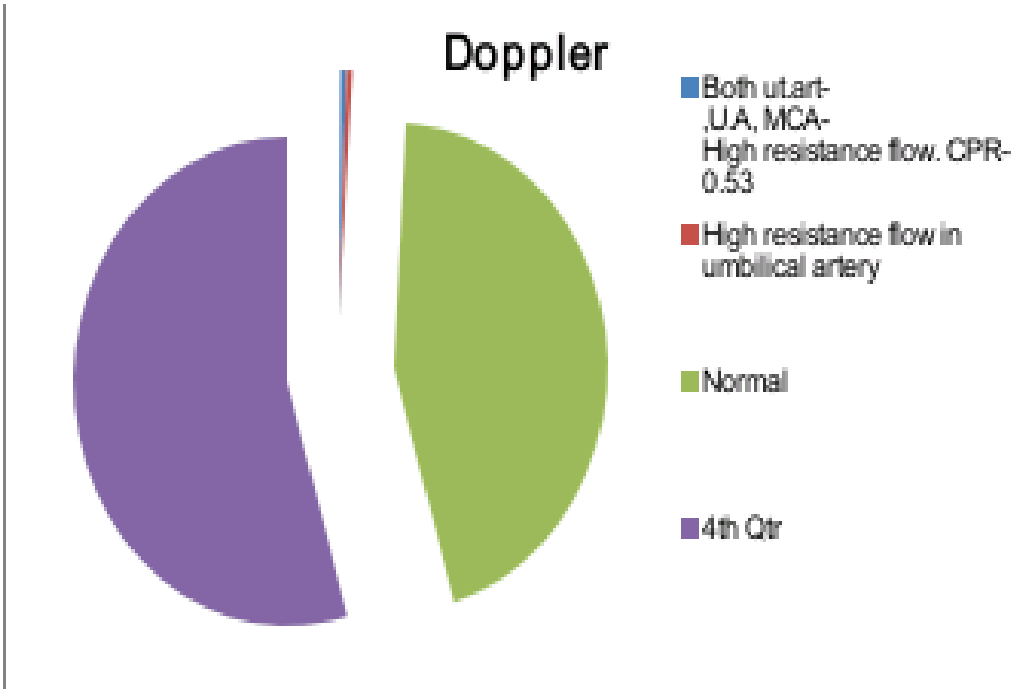
Spontanous normal vaginal delivery 61%, folley bulb induction 3%,ARM with synto acceleration 19%, PGE2 gel induction17%

DESCRIPTIVE ANALYSIS

	N	Minimum	Maximum	Mean	Std. deviation
Age	100	18.55	34.0	25.3200	3.34507
Birthweight	100	1.55	3.70	2.6732	.32941
Valid N(likewise)	100				

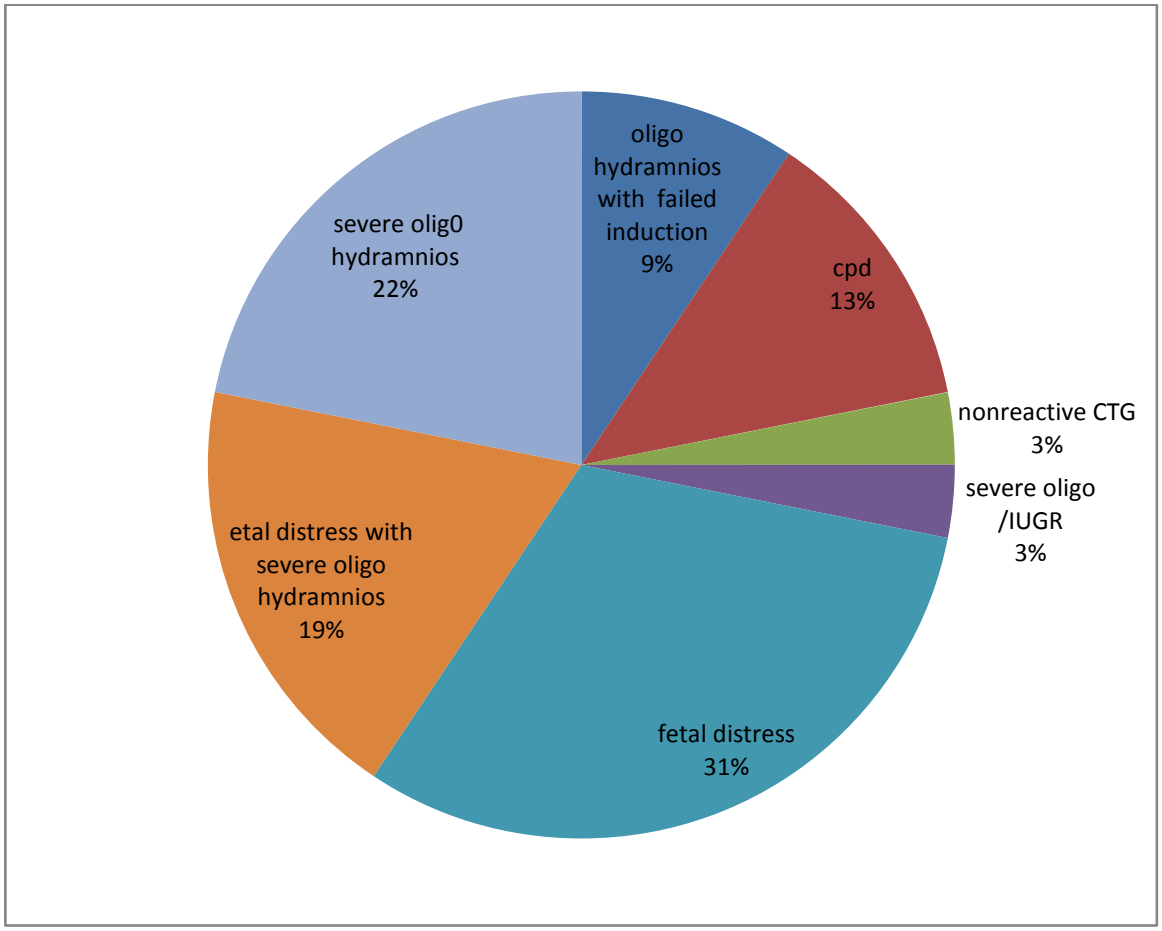
DOPPLER FINDING

		Frequency	percent
valid	Both uterine artery and umbilical artery high resistance flow	1	1.0
	High resistance flow in umbilical artery	1	1.0
	Normal	98.0	98.0
	Total	100	100


Doppler
Both ut.art-
,U.A, MCA-
High resistance flow. CPR-
0.53
High resistance flow in
umbilical artery
Normal
4th Qtr

Indication for LSCS

	No. of cases	percentage	
Oligo/ failed induction	3	3.0	
CPD	4	4.0	
Non reactive CTG	1	1.0	
Severe oligo/IUGR	1	1.0	
Fetal distress	10	10.0	
Fetal Distress with severe oligohydramnios	6	6.0	
Severe Oligohydramnios	7	7.0	
Total	32	32.0	

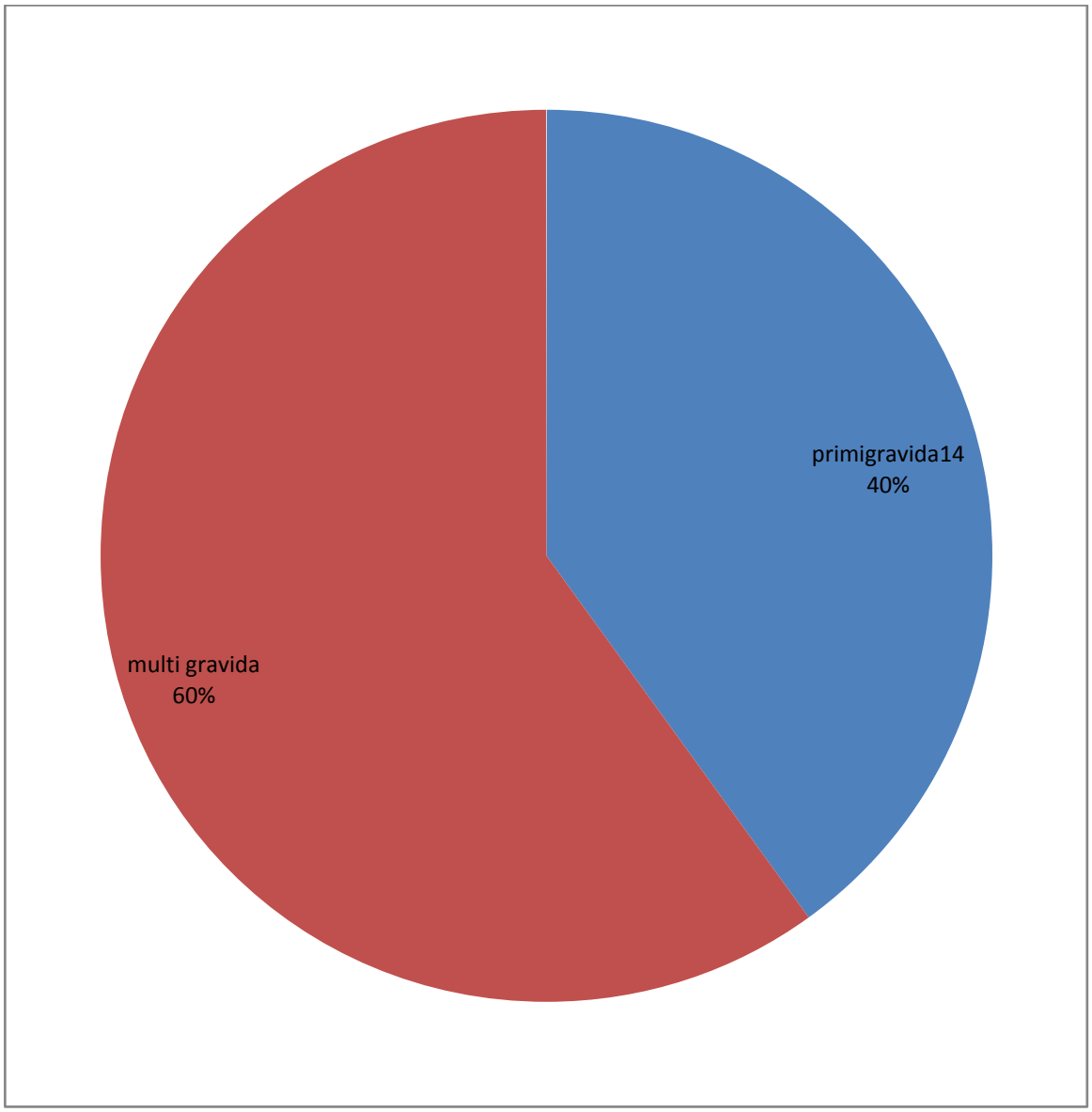


According to above table and chart,

Indication for LSCS as oligo hydramnios 22%,oligo hydramnios with failed induction 9%, CPD13%,fetal distress31%, fetal distress with severe oligo hydramnios 19%

Incidence of LSCS in primi VS. Multigravida

	no of cases	Percent
Primi gravida	**14**	**40%**
Multi gravida	**21**	**60%**



Incidence from the present study shows, primi is 40% in comparison to mutigravida with 60%

DISCUSSION

“Oligo hydramnios is associated with perinatal mortality and morbidity. Fetal heart

rate abnormality and and low apgar score is more common findings. Neonatal and

fetal acidosis rates were high as compared to controls(Moore et al)

In this study 150 cases with AFI 5cm or less is compared with control

group 150 cases with AFI > 5cm .

In the study group -27 cases of pre eclampsia, 26 cases of post EDD, 22 cases of previous LSCS, 13 cases of breech.”

In control group- 19 cases of pre eclampsia, 13 cases of post EDD, 25 cases of

previous LSCs,. 6 cases of breech presentation was taken.”

In study conducted by by Casey et al B.M 2001 pregnancy outcomes after

antepartum, diagnosis of oligo hydramnios at or beyond 34 weeks gestation in 147 cases. This complication was associated with increase in labor induction(48%.)

non reassuring heart rate (48%). NICU admission (7%), MSAF (1%), neonatal

death rate(5%)

“In a study by Golan et al 1994, fetal outcome in 145 cases, they found increase

incidence of fetal distress, MSAF (29.1%), IUGR(24.5%), Breech (17%), asphyxia

during labor (11.5%), corrected PNMR(10%).”

“ Chamberlain and co workers 1993, the incidence of major congenital anomaly and

IUGR significantly associated with AFI”Youseef et al 1993 concluded in south

medical journal that study of AFI estimation and perinatal outcome in term

pregnancy is superior in deducing fetal outcome.”

“In study conducted by Locatelli A 2004 of perinatal outcome associated with

isolated oligohydramnios in uncomplicated pregnancies , independently related to

increased risk of low birth weight percentile.”

Study by Baron C and Co workers 2000 showed effect of amniotic fluid volume on

intrapartum perinatal outcome with AFI less than or equal to 5 cm. the efficacy of

oligohydramnios predicting caesarean delivery gave a sensitivity of 78% a specifity

of 74% positive predictive value of 33% and negative predictive value of 95%.

The AFI for detecting oligo hydramnios is valuable screening test for subsequent

fetal distress requiring caesarean delivery

“ Isolated oligohydramnios is not an uncommon finding. Cohort studies have shown

an association between oligohydramnios and higher rates of labor induction and

cesarean section because of non reassuring FHR tracing,[20]as well as adverse

perinatal outcome.[21,14] Trends in AFV within the normal range do not have

prognostic significance.[22] Some providers induce labor for oligohydramnios at term

to reduce perinatal morbidity and mortality, although the quality of evidence is low

and the grade of recommendation is weak.[2"(June 01, 2014

By Alessandro Ghidini MD, Marta Schilirò MD, Anna Locatelli MD)

SUMMARY

In this study perinatal outcome is good with 62% normal vaginal Delivery and 38% caesarean delivery with 13% of NICU admission with reason for fetal distress, low birthweight MSF with fetal distress. No case of neonatal death noted. Induction is 24 %

either in the form PGE2 gel induction or synto acceleration.

CONCLUSION

oligo hydramnios contribute 2 to 3 percent of all pregnancies.

Oligo hydramnios can be classified into Early and Late onset.

Early and late onset gives some clue about the underlying pathology. Some contemporary cause which causes early

and late onset oligo hydramnios adversely effect the pregnancy outcome .

when all the maternal and fetal cause is excluded , isolated oligo hydramnios is

diagnosed.

Decrease in liquor volume which can cause umbilical cord compression, utero placental

insufficiency and meconium stained liquor can cause adverse outcome

But present study on isolated oligohydramnios is concluded with good perinatal outcome

with no perinatal mortality morbibity

Considering the indication for caesarean section actual reason for NICU admission, rate

for caesarian section can be decreased by intra partum close fetal surveillance.

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Address Md Since

Booked / Unbooked DOA

Menstural History LMP –

EDD –

Maternal Complication

G.E – Anemia / Pedal Edema / Temp

Obstetric Examination

Ht of fundus –

Presentation –

FHR -

Liquor clinically - Adequate / Not Adequate

Investigations:

Urine - Albumin Hb % - Other investigations

Sugar Blood group

Deposits

USG – GA –

Placenta NST – Reactive / Non reactive

FH

AFI

Mode of Delivery

Spontaneous ☐ Induction ☐

Vaginal ☐ Instrumental ☐ LSCS - EMG/Elective

Induction Delivery Interval

Drip given / not FHR

Variation Duration of

Labour – Rupture of

Memb – Colour of

Liquor – Baby

Details:

Cried after birth - Yes / No

Sex - Boy / Girl

Wt -

Apgar -

Baby Resucitated -

Admission in NICU - Yes / No Days –

MSAF - Yes / No

Associated Complication

for baby -

Follow up:

Whether Baby discharged in good condition.

28 Days follow up –

EXPANSION OF ABBREVIATIONS

AF	**-**	**Amniotic Fluid**
AFI	**-**	**Amniotic Fluid Index AFV -**
		Amniotic Fluid Volume H -
		Foetal Heart
GA	**-**	**Gestational Age**
LSCS	**-**	**Lower Segment Caesarean Section**
NST	**-**	**Non Stress Test**

A study in perinatal outcome in term isolated oligo hydramnios

சுய ஒப்புதல் படிவம்

ஆய்வு செய்யப்படும் தலைப்பு :

"முழு காலம் கர்ப்பிணியின் பனிகுடம் தண்ணீர் குறைவதால் குழந்தைக்கு ஏற்படும் விளைவுகள் பற்றி வருங்கால ஆய்வு"

ஆய்வு நடத்தப்படும் இடம்:

சமூக மகப்பேறியல் நிலையம் மற்றும் அரசு கஸ்தூரிபா காந்தி தாய் சேய் நல மருத்துவமனை, சென்னை-5.

பங்கு பெறுபவரின் பெயர் : **பங்கு பெறுபவரின் வயது:**

பங்கு பெறுபவரின் எண் :

இந்த ஆய்வில் குறிப்பிட்டுள்ள மருத்துவ ஆய்வின் விவரங்கள் எனக்கு விளக்கப்பட்டது. நான் இவ்வாய்வில் தன்னிச்சையாக பங்கேற்கிறேன். எந்த காரணத்தினாலோ எந்த சட்ட சிக்கலுக்கும் உட்படாமல் நான் இவ்வாய்வில் இருந்து விலகிக் கொள்ளலாம் என்றும் அறிந்து கொண்டேன்.

இந்த ஆய்வு சம்பந்தமாகவோ அல்லது அதை சார்ந்து மேலும் ஆய்வு மேற் கொள்ளும் போதும் இந்த ஆய்வில் பங்கு பெறும் மருத்துவர் என்னுடைய மருத்துவ அறிக்கைகளை பார்ப்பதற்கு என் அனுமதி தேவையில்லை என்பதை அறிந்து கொள்கிறேன். இந்த ஆய்வின் மூலம் கிடைக்கும் முடிவை பயன்படுத்திக் கொள்ள மறுக்கமாட்டேன்.

இந்த ஆய்வில் பங்கு கொள்ள ஒப்புக் கொள்கிறேன். இந்த ஆய்வை மேற் கொள்ளும் மருத்துவ அணிக்கு உண்மையுடன் இருப்பேன் என்றும் உறுதியளிக்கிறேன்.

A study in perinatal outcome in term isolated oligo hydramnios

பங்கேற்பவரின் கையொப்பம்

இடம் :

தேதி :

சாட்சிகளின் கையொப்பம்

இடம் :

தேதி :

பங்கேற்பவரின் பெயர் மற்றும் விலாசம்

ஆய்வாளரின் கையொப்பம்

இடம் :

தேதி :

A study in perinatal outcome in term isolated oligo hydramnios

ஆராய்ச்சி தகவல் தாள்

“முழு காலம் கர்ப்பிணியின் பனிகுடம் தண்ணீர் குறைவதால் குழந்தைக்கு ஏற்படும் விளைவுகள் பற்றி வருங்கால ஆய்வு”

ஆய்வின் நோக்கம் மற்றும் செயல்முறை:

“முழு காலம் கர்ப்பிணியின் பனிகுடம் தண்ணீர் குறைந்துள்ள பெண்களை கண்டறிந்து அவர்களுக்கு சிகிச்சை அளிப்பதில் எம்முறை பலன் அளிக்கின்றது என்பதை குறித்து கண்டறிதல்.

மருத்துவ சிகிச்சையின் தகவல்கள் குறித்த விபரங்கள் :

உங்கள் மருத்துவ சிகிச்சை பற்றிய தகவல்கள் இரகசியமாக பாதுகாக்கப்படும்.

நீங்களும் இந்த ஆராய்ச்சியில் பங்கேற்க நாங்கள் விரும்புகிறோம். இந்த ஆராய்ச்சியில் உங்களுக்கு பரிசோதனைகள் செய்து அதன் தகவல்களை ஆராய்வோம். அதனால் தங்கள் நோயின் ஆய்வறிக்கையோ அல்லது சிகிச்கையோ பாதிப்பு ஏற்படாது என்பதையும் தெரிவித்துக் கொள்கிறோம். முடிவுகள் அல்லது கருத்துக்களை வெளியிடும் போதோ அல்லது ஆராய்ச்சியின் போதோ தங்கள் பெயரையோ அல்லது அங்க அடையாளங்களையோ வெளியிட மாட்டோம் என்பதை தெரிவித்துக் கொள்கிறோம்.

இந்த ஆராய்ச்சியில் பங்கேற்பது தங்களது விருப்பத்தின் பேரில் தான் இருக்கிறது. மேலும் நீங்கள் எந்நேரமும் இந்த ஆராய்ச்சியிலிருந்து விலகி கொள்ளலாம் என்பதையும் தெரிவித்துக் கொள்கிறோம்.

A study in perinatal outcome in term isolated oligo hydramnios

இந்த சிறப்பு சிகிச்சையின் முடிவுகளை ஆராய்ச்சியின் போது அல்லது ஆராய்ச்சி முடிவின் போது தங்களுக்கு அறிவிக்கப்படும் என்பதையும் தெரிவித்துக் கொள்கிறோம்.

ஆராய்ச்சியாளர் கையொப்பம் **பங்கேற்பாளர் கையொப்பம்**

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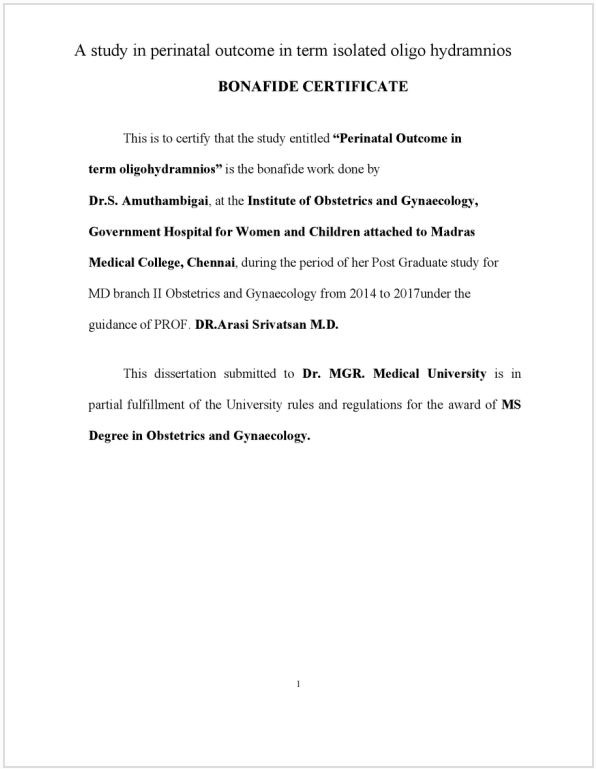

A study in perinatal outcome in term isolated oligo hydramnios

BONAFIDE CERTIFICATE

This is to certify that the study entitled **"Perinatal Outcome in term oligohydramnios"** is the bonafide work done by **Dr.S. Amuthambigai**, at the **Institute of Obstetrics and Gynaecology, Government Hospital for Women and Children attached to Madras Medical College, Chennai**, during the period of her Post Graduate study for MD branch II Obstetrics and Gynaecology from 2014 to 2017under the guidance of PROF. **DR.Arasi Srivatsan M.D.**

This dissertation submitted to **Dr. MGR. Medical University** is in partial fulfillment of the University rules and regulations for the award of **MS Degree in Obstetrics and Gynaecology.**

1

A study in perinatal outcome in term isolated oligo hyd

Liquor amni, a fluid released by amnion. It is a 2 layered extra embryonic which is formed by inner ectoderm and outer somatic mesoderm .Liquor am fluid medium for early development of embryo.

Formation of amniotic fluid

Composition of amniotic fluid is same as extracellular fluid during the firs Three overlapping excretory system develop during the embryo fetal develo nephros, mesonephros, meta nephros. The metanephric system begin to de weeks menstrual age and are functional by 10 to 11weeks. Fetal urine is hyp

Hypotonicity of fetal urine explained by the fact that glomerular filtration pr

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Text-Only Report

INSTITUTIONAL ETHICS COMMITTEE
MADRAS MEDICAL COLLEGE, CHENNAI 600 003

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CERTIFICATE OF APPROVAL

To
Dr.Pampa Deb Barma, MBBS.,
II Year Post Graduate in M.S. (O & G)
Inst. of Social Obstetrics and KGH
Madras Medical College
Chennai 600 003

Dear Dr.Pampa Deb Barma,

The Institutional Ethics Committee has considered your request and approved your study titled **"PERINATAL OUTCOME IN TERM ISOLATED OLIGO HYDRAMNIOS" - NO.24022016.**

The following members of Ethics Committee were present in the meeting hold on **01.03.2016** conducted at Madras Medical College, Chennai 3

1.Dr.C.Rajendran, MD.,	:Chairperson
2.Dr.R.Vimala,MD.,Dean,MMC,Ch-3	:Deputy Chairperson
3.Prof.Sudha Seshayyan,MD., Vice Principal,MMC,Ch-3	: Member Secretary
4.Prof.B.Vasanthi,MD.,Inst.of Pharmacology,MMC,Ch-3	: Member
5.Prof.P.Raghumani,MS, Dept.of Surgery,RGGGH,Ch-3	: Member
6.Dr.Baby Vasumathi, Director, Inst. of O&G,Ch-8	: Member
7.Prof.M.Saraswathi,MD.,Director, Inst.of Path,MMC,Ch-3	: Member
8.Prof.Srinivasagalu,Director,Inst.of Int.Med.,MMC,Ch-3	: Member
9.Tmt.J.Rajalakshmi, JAO,MMC, Ch-3	: Lay Person
10.Thiru S.Govindasamy, BA.,BL,High Court,Chennai	: Lawyer
11.Tmt.Arnold Saulina, MA.,MSW.,	:Social Scientist

We approve the proposal to be conducted in its presented form.

The Institutional Ethics Committee expects to be informed about the progress of the study and SAE occurring in the course of the study, any changes in the protocol and patients information/informed consent and asks to be provided a copy of the final report.

Member Secretary - Ethics Committee

MEMBER SECRETARY
INSTITUTIONAL ETHICS COMMITTEE
MADRAS MEDICAL COLLEGE
CHENNAI-600 003